

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
16 December 2004 (16.12.2004)

PCT

(10) International Publication Number  
WO 2004/108884 A2

(51) International Patent Classification<sup>7</sup>: C12N AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(21) International Application Number: PCT/SE2004/000917 (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(22) International Filing Date: 10 June 2004 (10.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 0301722-5 10 June 2003 (10.06.2003) SE

(71) Applicant and  
(72) Inventor: IMBERG, Anna [SE/SE]; S:t Olofsgatan 52A, S-753 30 Uppsala (SE).

(74) Agent: DR LUDWIG BRANN PATENTBYRÅ AB; P.O. Box 17192, S-104 62 Stockholm (SE).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, BG, CR, CY, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, TZ, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

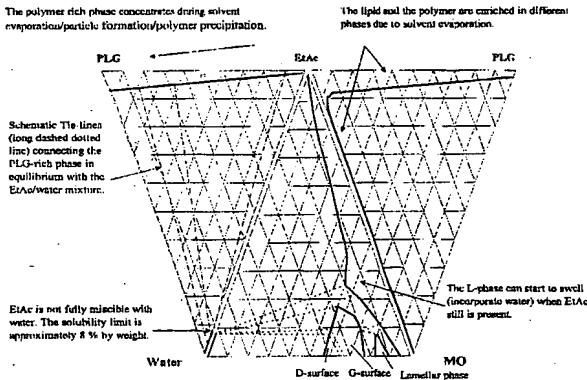
Published:  
— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: COMPOSITE MATERIALS AND PARTICLES



WO 2004/108884 A2



(57) Abstract: The invention is a method of making a composite material (from a route given by the phase behavior of a suitable chemical system that is described in a phase diagram), which comprises at least one amphiphilic component and at least one polymer component. It comprises providing a mixture of at least one polymer and at least one amphiphilic compound in a volatile solvent or solvent mixture as well as providing a phase diagram of the chemical system that describes how the components of the chemical system interact in thermodynamic stable phases as a function of temperature, concentration and pressure. The polymer should be a homopolymer, a random block copolymer or a mixture thereof, preferably biodegradable. The amphiphilic compound has the ability to form a bilayer-containing phase. The solvent is removed from the mixture by a process selected from the phase diagram in dependence of the final composite material to be achieved, whereby a material is formed, such as liquid extraction against a second solvent, or by spraying. It also relates to the composite material, in particular particles, solid implants, semi-solid, gel-like matrices, useful for applications such as encapsulation of therapeutically active components or surface coating.